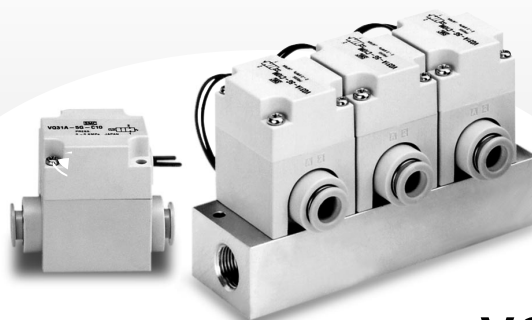


For Dry Air, Pilot Operated

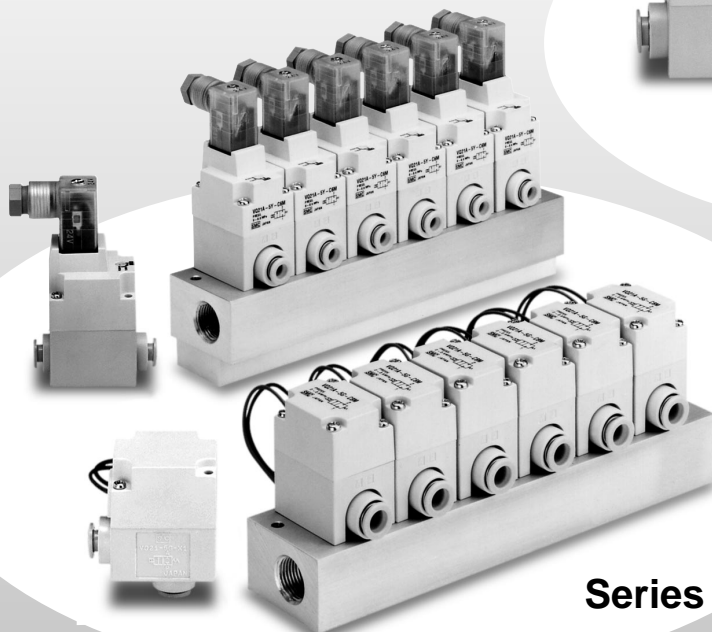
# 2 Port Solenoid Valve Series VQ20/30

**Compact & lightweight with large flow capacity**

	Weight (g)	Effective area (mm <sup>2</sup> )
VQ20	46	9 (Cv0.5)
VQ30	80	17.5 (Cv1)



**Series VQ30**



**Series VQ20**

VX

VN□

VQ

**High frequency operation possible and long operating life**

High speed response 5ms or less (VQ20), 20ms or less (VQ30)

(Without indicator light and surge voltage suppressor, at 0.5MPa of supply pressure)

20 million cycles (subject to clean and dry air)

**Easy piping with built-in One-touch fittings**

**Dust and jet proof enclosure available with DIN connector**

**Applications: Air-blow, Blow-off of work piece, etc.**

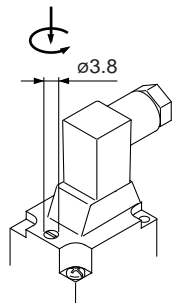
⚠️ Precautions

Be sure to read before handling. Refer to p.0-33 to 0-36 for Safety Instructions and common precautions.

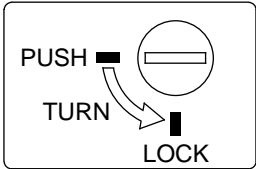
⚠️ Warning  
Manual Override

Regardless of electric signals to the solenoid valve, the manual override is used for switching the main valve. (DIN connector only.)

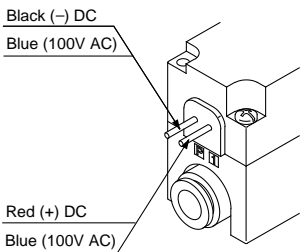
Locking slotted style



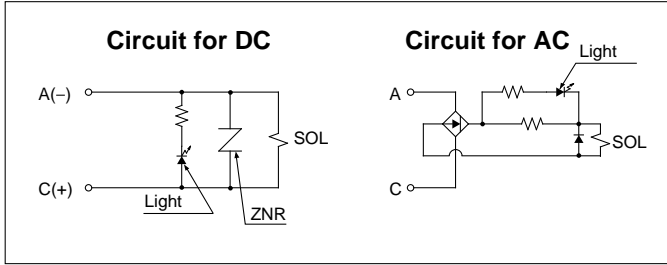
Push the manual override button with a small screw driver until it stops. Turn it in the counter-clockwise direction at 90°, and it is locked. Turn it right to release.



⚠️ Caution  
Connection and Electrical Circuit



With indicator light and surge voltage suppressor



⚠️ Caution  
How to Wire The DIN Connector

ISO#: Based on DIN 43650C (Pin gap 8mm) Connection

- ① Loosen the tightening screw and pull the connector off of the solenoid valve.
- ② After removing the tightening screw, divide the terminal block and housing by prying open the slot area of the lower part of the terminal block open with a screw driver.
- ③ Loosen the terminal screws of the block and insert stripped lead wires in accordance with the wiring diagram. Secure each wire by retightening the terminal screw.
- ④ Tighten the ground nut to secure the cable wire.

Change of electrical entry

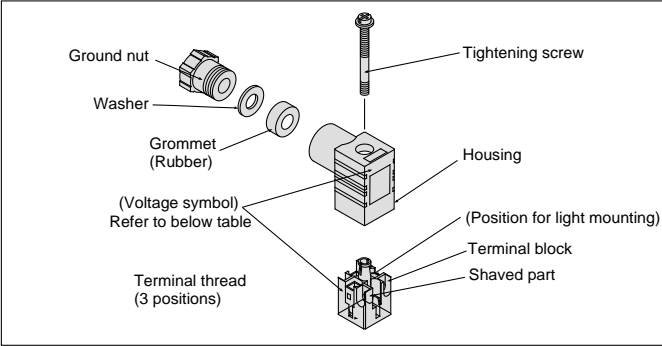
Wire entry can be changed by mounting the housing in either direction (four directions at every 90°) after dividing the terminal block and the housing.  
\* For the indicator lighted style, be careful not to damage the light with the lead wire of the cable.

Precaution

Insert/remove the connector vertically, not at an angle.

Applicable cable

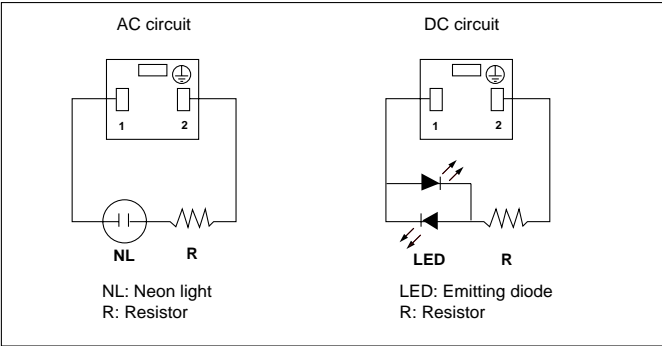
Cord O.D.:  $\phi 3.5$  to  $\phi 7$   
(Reference) 0.5mm<sup>2</sup> 2-core and 3-core wires equivalent to JIS C 3306.



DIN connector part number (Based on DIN)

Without light	SY100-82-4	
With light		
Rated voltage	Voltage symbol	Part No.
24V DC	24V	SY100-82-3-05
12V DC	12V	SY100-82-3-06
100V AC	100V	SY100-82-2-01

DIN connector circuit with light



Manifold

⚠ Caution

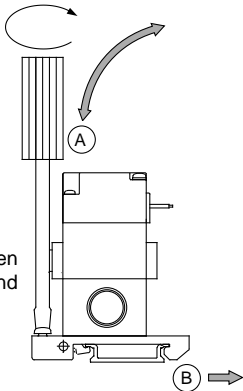
How to Mount/Remove from DIN Rail

To remove manifold from DIN rail:

- 1) Loosen the clamp screw on the "A" side of both ends of the manifold.
- 2) Lift the "A" side of the manifold off the DIN rail and slide it in the direction of the "B" side.

Mounting manifold to DIN rail:

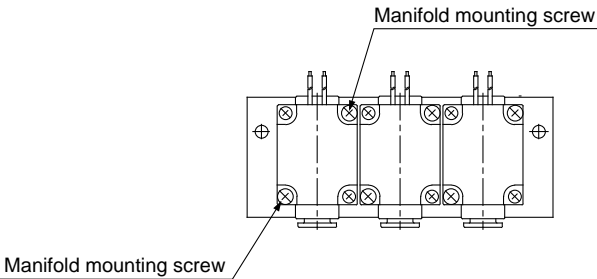
- 1) Hook the mounting hook on the "B" side of the manifold base to the DIN rail.
- 2) Push side "A" onto the DIN rail and tighten the clamp screw on the "A" side of the end plate. (Tightening torque: 0.3 to 0.4Nm)



⚠ Caution

Valve Mounting

After confirming the gasket is correctly placed under the valve, tighten the mounting screws with the appropriate torque (0.2 to 0.23Nm).



⚠ Caution

Maximum Number of Valves for Simultaneous Operation

Series	P port one side supply	P port both side supply
VQ20	4	8
VQ30	2	4

If the max. number of valves simultaneously operated exceeds the numbers above, the effective flow rates will be reduced.

VX

VN□

VQ

For Dry Air,  
Pilot  
Operated

# 2 Port Solenoid Valve

## Series VQ20/30

### Single Unit

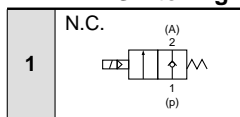
#### How to Order Valve

VQ 2 1 A 1 - 1 G - - C6 -

##### Series/Orifice

Symbol	Series	Effective orifice
2	VQ20	3.4mm ø
3	VQ30	4.8mm ø

##### Switching



Note) Consult SMC if N.O. is desired.

##### Body style

A: Single unit	
M: For manifold	

##### Coil voltage

1	100V AC(50/60 Hz)
2	200V AC
3	110V AC
5	24V DC
6	12V DC
9 <sup>(1)</sup>	Others voltages

Note 1) Contact SMC for other voltages.

##### Option

—: None	
F: With bracket	
L: L style (VQ20 Only)	

Note) If ordering both options, indicate "LF".

##### Port size

Symbol	Port size	VQ20	VQ30
C6	One-touch fitting for ø6	○	—
C8	One-touch fitting for ø8	○	—
C10	One-touch fitting for ø10	—	○
C12	One-touch fitting for ø12	—	○

##### Manual override

—	None
B <sup>(1)</sup>	Locking style (Slotted)

Note 1) Only normally closed DIN connector in-line style is possible.

##### Indicator light and surge voltage suppressor

—	None
S	With surge voltage suppressor
Z	With indicator light and surge voltage suppressor

Note) Coil voltage 100V AC: With surge voltage suppressor.

Note) "YOZ" is not available.

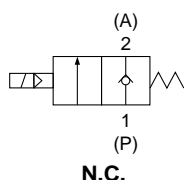
##### Electrical entry

G: Grommet	
Y: DIN connector	
YO: DIN terminal without connector	

## Standard Specifications



### Symbol



Valve	Series		VQ20		VQ30	
	Valve structure		2 port poppet pilot operated			
	Fluid		Air, Inert gas			
	Min. operating pressure		0.01MPa			
	Max. operating pressure		0.6MPa		0.5 MPa	
	Effective area (Cv/Effective orifice)		C6	7.2mm <sup>2</sup> (Cv0.4/ø3)	C10	14.4mm <sup>2</sup> (Cv0.8/ø4.3)
			C8	9mm <sup>2</sup> (Cv0.5/ø3.4)	C12	17.5 mm <sup>2</sup> (Cv1/ø4.8)
	Body orifice		ø6		ø13.8	
	Response time <sup>(1)</sup>		5ms or less		20ms or less	
	Max.operating frequency		100cps		30cps	
	Ambient and fluid temperature		-10 to 50 °C <sup>(2)</sup>			
	Lubrication		Not required			
	Manual override		Locking style (Slotted) <sup>(3)</sup>			
	Shock resistance/Vibration resistance		150/ 30m/s <sup>2</sup> <sup>(4)</sup>			
	Enclosure		Dust proof <sup>(5)</sup>			
Mounting position		Free				
Weight		46g		80g		
Solenoid	Coil rated voltage		12V DC, 24V DC, 100V AC, 110V AC, 200V AC			
	Allowable voltage		± 10% of rated voltage			
	Coil insulation		Class B or equivalent			
	Power consumption (Current value)	24V DC	2.5W DC (104mA)			
		12V DC	2.5W DC (208mA)			
		100V DC	Inrush: 2VA (20mA) Holding: 2VA (20 mA)			
Electrical entry		Grommet, DIN terminal				



Note 1) According to JISB8375-1981. (Supply pressure: 0.5MPa, Without light and surge voltage suppresser)

Note 2) Use dry air to prevent condensation when operating at low temperatures.

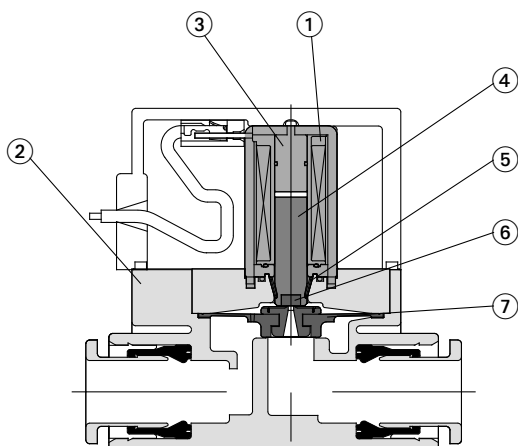
Note 3) Manual override is available only for DIN terminal style.

Note 4) Shock resistance: No malfunction resulted from the impact test using a drop impact tester. The test was performed on the axis and right angle directions of the main valve and armature, for both energized and de-energized states. (Valve in the initial stage.)

Vibration resistance: No malfunction occurred in a one-sweep test between 8.3 and 2000Hz. Test was performed at both energized and de-energized states to the axis and right angle directions of the main valve and armature. (Value in the initial stage.)

Note 5) DIN connector style: Applicable to dust and jet proof (IP65).

## Construction



### Component Parts

No.	Description	Material
①	Solenoid coil	—
②	Body	Resin
③	Fixed armature	Stainless Steel
④	Armature	Stainless Steel
⑤	Return spring	Stainless Steel
⑥	Poppet	NBR
⑦	Diaphragm assembly	NBR, Resin

VX

VN□

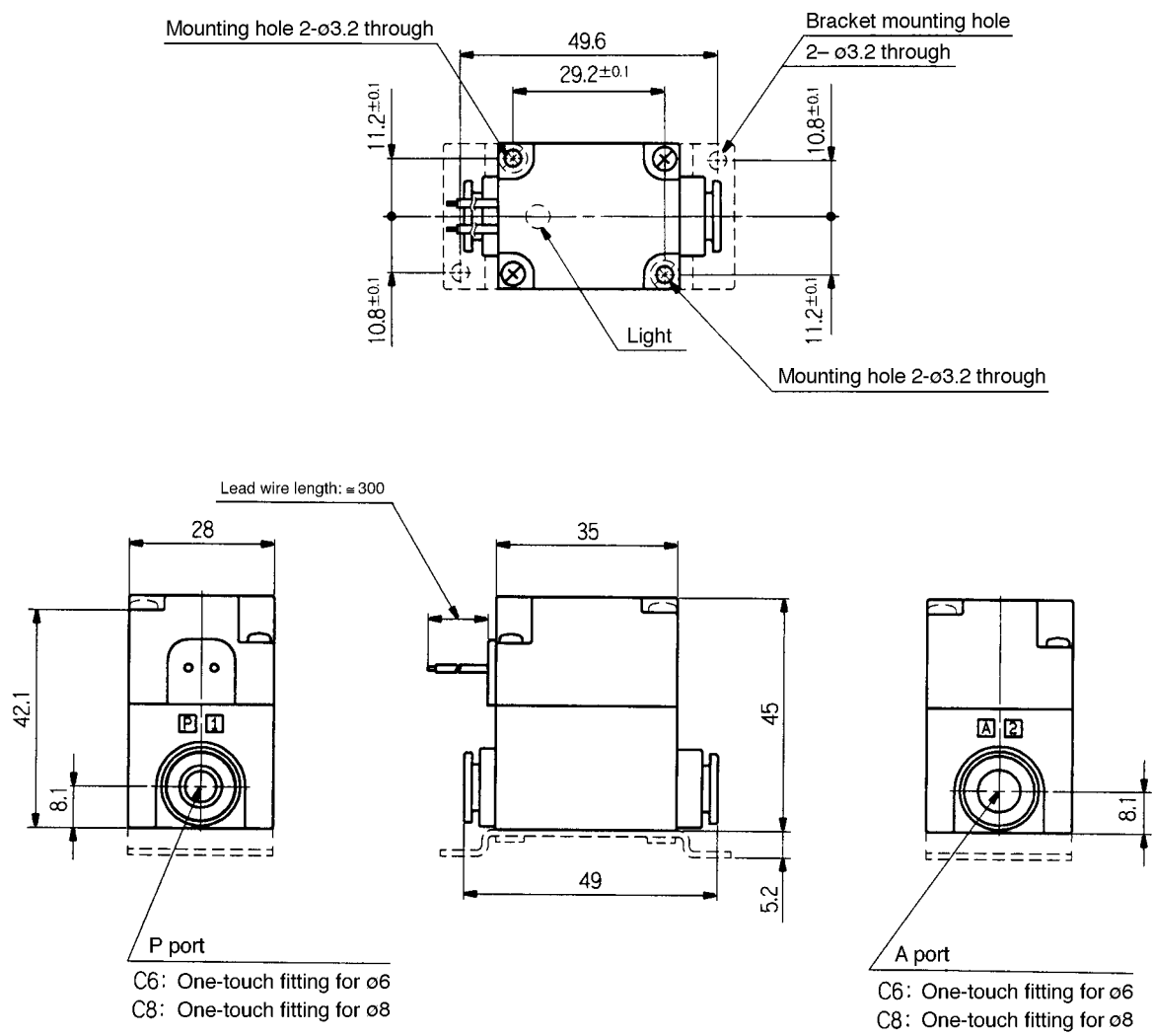
VQ

# Series VQ20/30

## Dimensions/Series VQ20

In-line style/Grommet(G)

VQ21A1-□G□-□□-□□

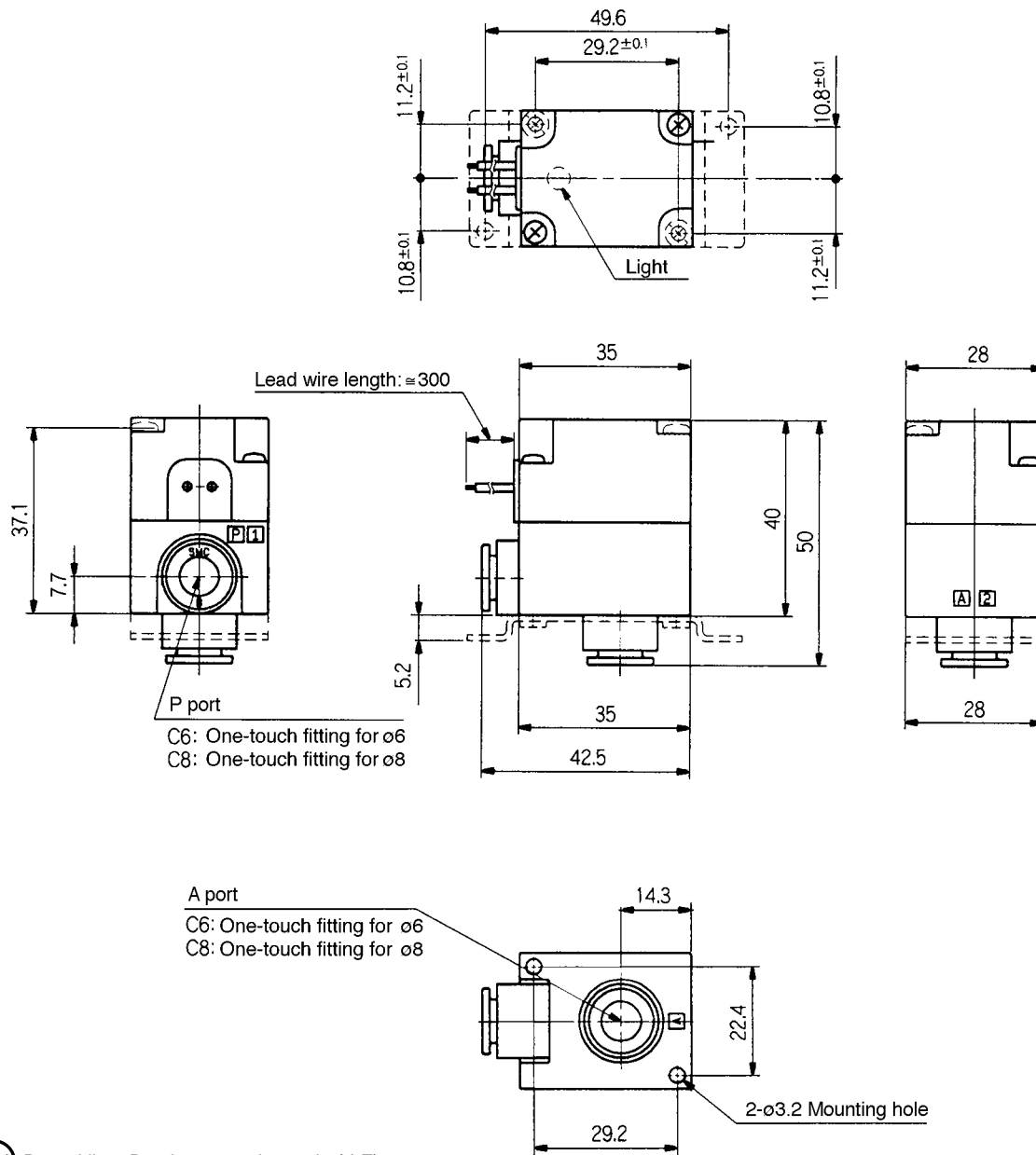


 Dotted line: Bracket mounting style (-F)

## Dimensions/Series VQ20

L style/Grommet (G)

VQ21A1-□G□-□-L□



VX

VN□

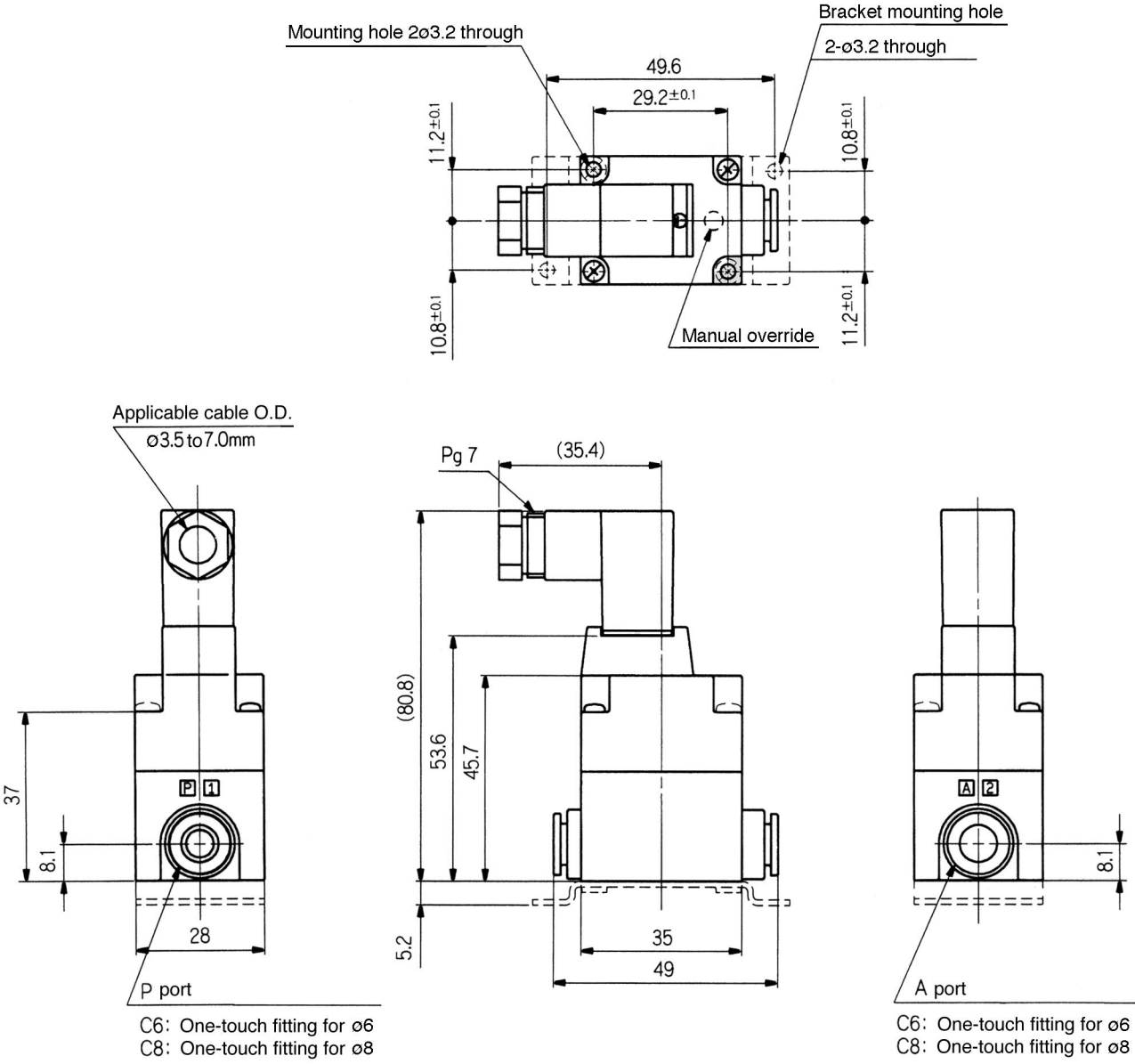
VQ

# Series VQ20/30

## Dimensions/Series VQ20

In-line/DIN connector (Y)

VQ21A1-□Y□□-□□-□



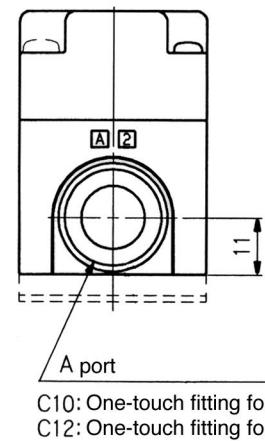
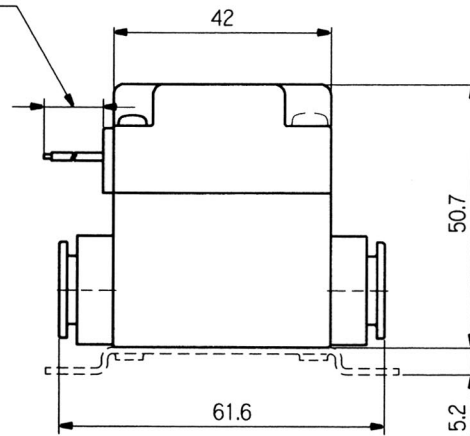
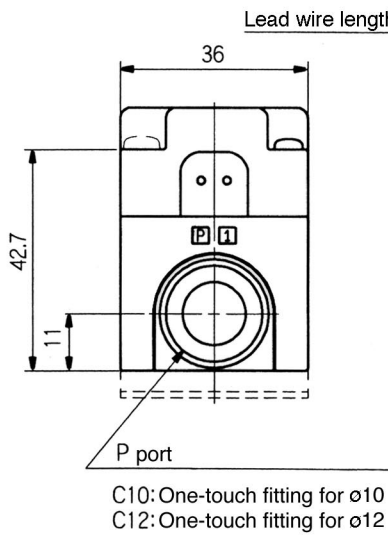
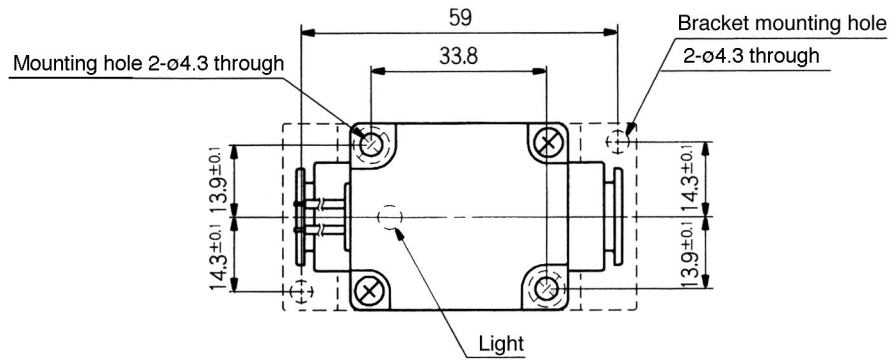
Dotted line: Bracket mounting style (-F)



## Dimensions/Series VQ30

### In-line/Grommet (G)

VQ31A1-□G□-□□-□



VX

VN□

VQ



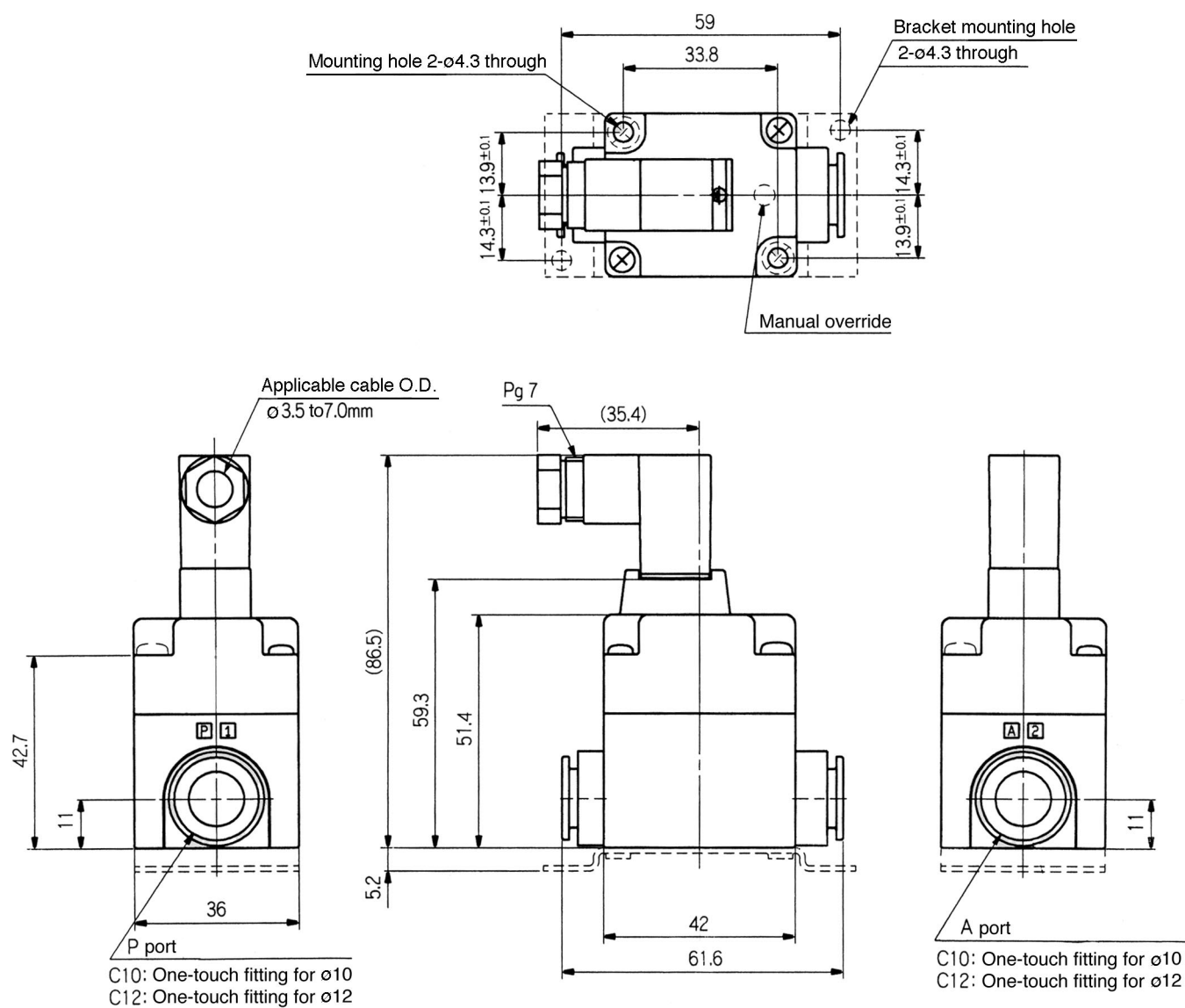
Dotted line: Bracket mounting style (-F)


# Series VQ20/30

## Dimensions/Series VQ30

### DIN connector (Y)

VQ31A1-□Y□□-□□-□



 Dotted line: Bracket mounting style (-F)

## How to Order Manifold

**VV2Q 2 2 - 08**

**Series**

2	VQ20
3	VQ30

**Stations**

02	2 stations
:	:
20	20 stations

**P port/Thread**

—	Rc3/8
00N	NPT3/8
00T	NPTF3/8
00F	G3/8

**Option**

—	None
D	DIN rail mounting
DO	DIN rail mounting (Without DIN rail)

## How to Order Manifold Assembly

List valve and option part numbers under the manifold base part number.

### <Example>

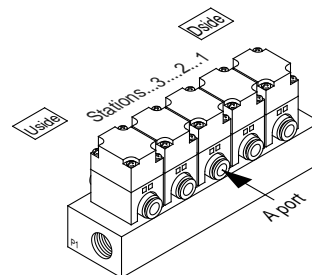
VV2Q22-05 ..... 1 set — Manifold part No.

\* VQ21M1-5G-C6 ..... 4 sets — Valve part No.  
(Stations 1 to 4)

\* VQ21M1-5G-C8 ..... 1 set — Valve part No.  
(Station 5)

Prefix "\*" mark on valves to be assembled on the manifold.

Write sequentially from the 1st station on the D side



## How to Order Valve

**VQ 2 1 M 1 - 1 G**

**Series/Orifice**

Symbol	Series	Effective orifice
2	VQ20	3.4mm ø
3	VQ30	4.8mm ø

**Switching**

1 N.C. (A) 2 (P) 1

Note) Consult SMC if N.O. type is desired

**Valve specification**

M	Manifold
---	----------

**Coil voltage**

1	100V AC(50/60Hz)
2	200V AC
3	110V AC
5	24V DC
6	12V DC
9 <sup>(1)</sup>	Other voltage

Note 1) Consult SMC for other voltages.

**Port size**

Symbol	Port size	VQ20	VQ30
C6	One-touch fitting for ø6	○	—
C8	One-touch fitting for ø8	○	—
C10	One-touch fitting for ø10	—	○
C12	One-touch fitting for ø12	—	○

**Manual override**

—	None
B <sup>(1)</sup>	Locking style (Slotted style)

Note 1) Only normally closed DIN connector in-line style is applicable.

**Indicator light and surge voltage suppressor**

—	None
S	With surge voltage suppressor
Z	Indicator light and surge voltage suppressor

Note) Coil voltage 100V AC: With surge voltage suppressor  
Note) "YOZ" is not available

**Electrical entry**

G	Grommet
Y	DIN connector
YO	DIN terminal (Without connector)

VX

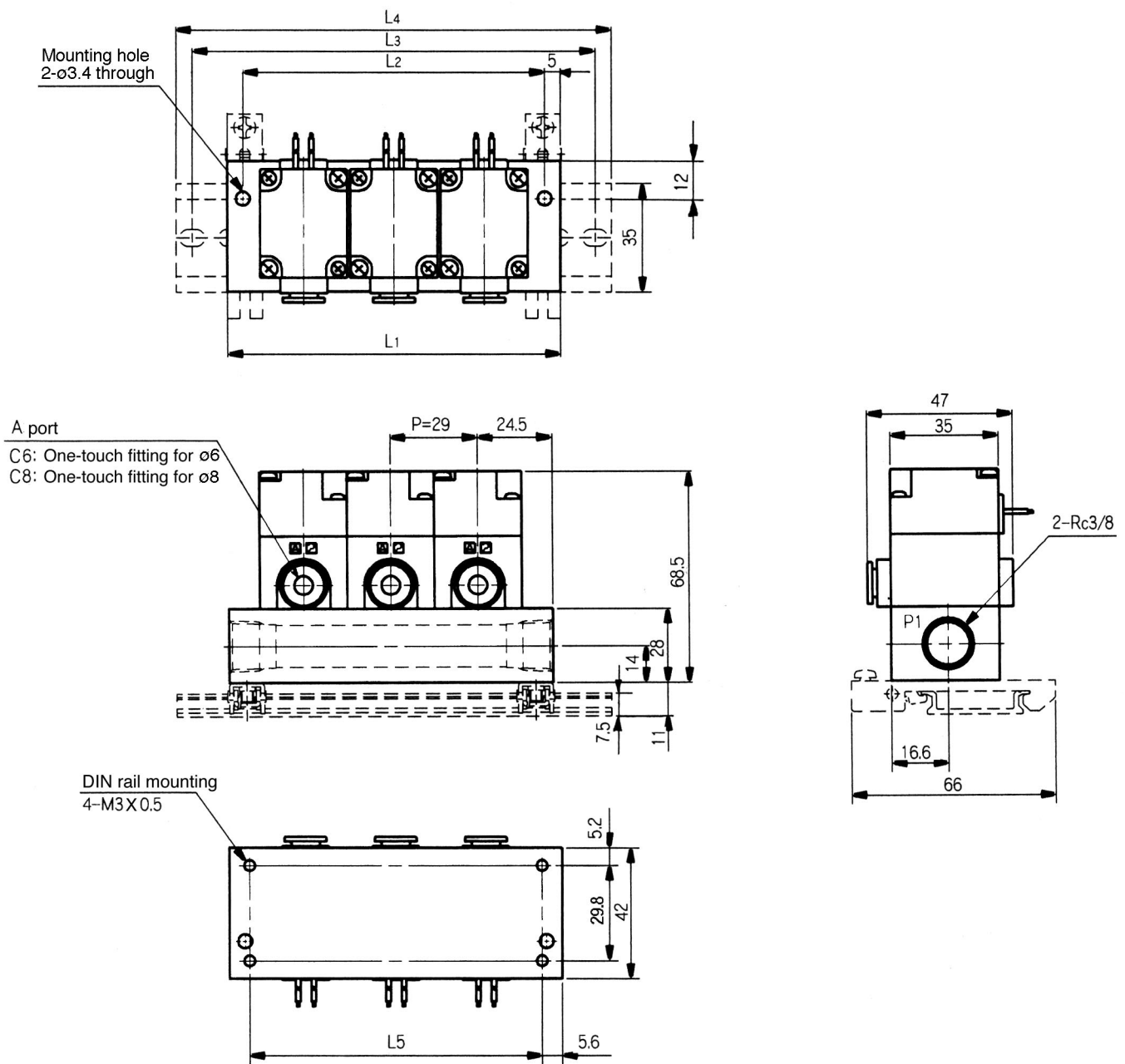
VN□

VQ

# Series VQ20/30

## Dimensions

Plug lead unit manifold (VV2Q22-□□)



Dotted line: DIN rail mounting (-D)

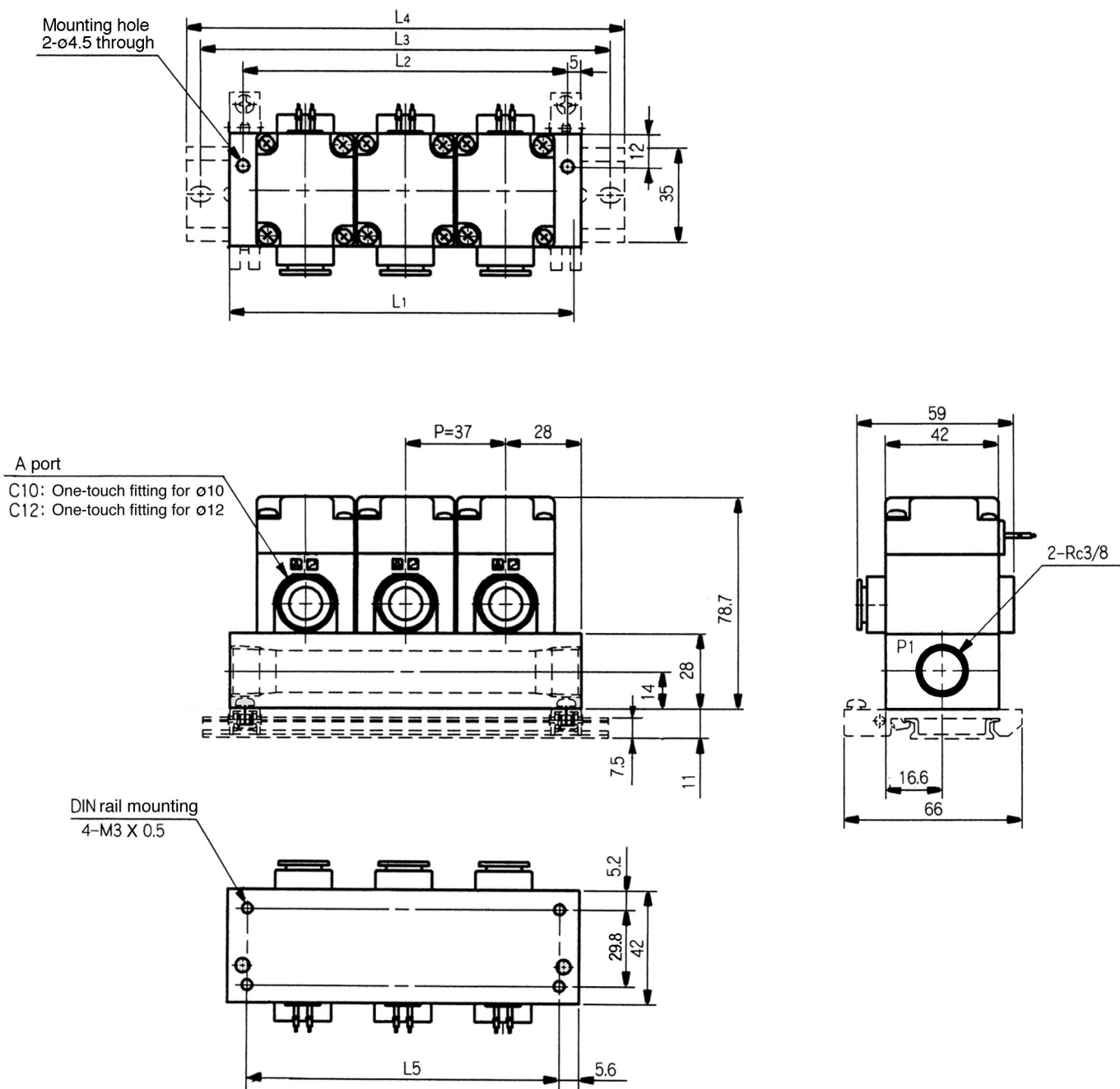
Equation  $L_1 = (n-1) \times 29 + 49$   
 $L_2 = L_1 - 10$   
 $L_3 = L_4 - 10.5$   
 $L_5 = L_1 - 11.2$

### Dimensions

Dimensions		n: Station (Max.20)																			
L \ n	n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1		49	78	107	136	165	194	223	252	281	310	339	368	397	426	455	484	513	542	571	600
L2		39	68	97	126	155	184	213	242	271	300	329	358	387	416	445	474	503	532	561	590
L3		75	100	137.5	162.5	187.5	212.5	250	275	300	337.5	362.5	387.5	425	450	475	500	537.5	562.5	587.5	625
L4		85.5	110.5	148	173	198	223	260.5	285.5	310.5	348	373	398	435.5	460.5	485.5	510.5	548	573	598	635.5
L5		37.8	66.8	95.8	124.8	153.8	182.8	211.8	240.8	269.8	298.8	327.8	356.8	385.8	414.8	443.8	472.8	501.8	530.8	559.8	588.8

## Dimensions

### Plug lead unit manifold (VV2Q32-□)



VX

VN□

VQ

Equation  $L_1 = (n-1) \times 37 + 56$   
 $L_2 = L_1 - 10$   
 $L_3 = L_4 - 10.5$   
 $L_5 = L_1 - 11.2$



Dotted line: DIN rail mounting (-D)

### Dimensions

n: Station (Max. 20)

L	n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1		56	93	130	167	204	241	278	315	352	389	426	463	500	537	574	611	648	685	722	759
L2		46	83	120	157	194	231	268	305	342	379	416	453	490	527	564	601	638	675	712	749
L3		75	112.5	150	187.5	225	261.5	300	337.5	375	412.5	450	487.5	525	562.5	599.5	636.5	673.5	710.5	747.5	784.5
L4		85.5	123	160.5	198	235.5	273	310.5	348	385.5	423	460.5	498	535.5	573	610.5	648	685.5	723	760.5	798
L5		44.8	81.8	118.8	155.8	192.8	229.8	266.8	303.8	340.8	377.8	414.8	451.8	488.8	525.8	562.8	599.8	636.8	673.8	710.8	747.8

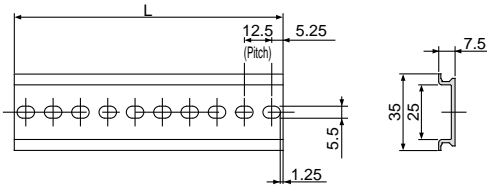
# Series VQ20/30

## Manifold Options

### DIN rail AXT100-DR-□

\*Suffix the number from DIN rail dimensions table below.  
Refer to manifold dimensions drawings for L dimension.

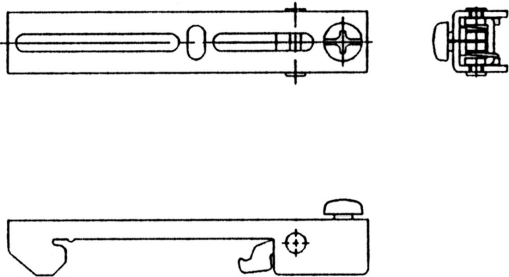
Each manifold can be mounted on a DIN rail.  
Order with the option symbol “-D” to specify  
DIN rail mounting style.  
The DIN rail is approximately 30mm longer  
than the length of manifold.



L dimensions																				L=12.5n+10.5	
Station	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
No.	6	9	12	15	18	21	24	27	30	33	36	39	42	45	47	50	53	56	59	62	
L	85.5	123	160.5	198	235.5	273	310.5	348	385.5	423	460.5	498	535.5	573	598	635.5	673	710.5	748	785.5	

### DIN rail mounting bracket VVQZ100-DB-5

This bracket is used for mounting the manifold on the DIN rail.  
DIN rail mounting bracket is attached on the manifold.  
1 set of DIN rail mounting brackets for 1 manifold  
includes 2 brakets.



### Blank plate AXT835-35A(For VQ20) AXT837-35A(For VQ30)

Mount a blank plate on valve manifold when a valve is  
disassembled for maintenance purpose, or when spare  
valve unit is supposed to be mounted in the future.